



CARLSON ENVIRONMENTAL, Inc.

December 12, 1996

PN 9442B

Ms. Nancy Wagner
IPSCO
2900 South 21st Avenue
Broadview, Illinois 60153

COPY

**SUBJECT: Limited Subsurface Soil Investigation
2424 Wisconsin Avenue
Downers Grove, Illinois**

Dear Ms. Wagner:

Enclosed are two copies of the Limited Subsurface Soil Investigation completed by Carlson Environmental, Inc. (CEI) for the above-referenced site. A summary of our findings is located on Page 4 of this report.

If you have questions or would like additional information please contact me or Edward Garske at (312) 346-2140.

It was a pleasure to complete this assignment on your behalf.

Sincerely,

CARLSON ENVIRONMENTAL, INC.

Melanie L. Luna
Environmental Technician

enclosures

EPA Region 5 Records Ctr.



265424



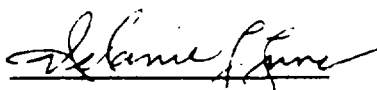
CARLSON ENVIRONMENTAL, Inc.


LIMITED SUBSURFACE SOIL INVESTIGATION

**2424 Wisconsin Avenue
Downers Grove, Illinois**

**Prepared by
CARLSON ENVIRONMENTAL, INC.
312 West Randolph Street
Suite 300
Chicago, Illinois 60606
(312) 346-2140**

**Project No. 9442B
December 12, 1996**


**Melanie L. Luna
Environmental Technician**


**Edward E. Garske, CHMM
Vice President of Operations**



CARLSON ENVIRONMENTAL, Inc.

TABLE OF CONTENTS

1.0 INTRODUCTION	1
2.0 BACKGROUND	1
2.1 Site Description	1
2.2 Purpose of Investigation	1
3.0 SOIL INVESTIGATION	2
3.1 Sampling Methodology	2
3.2 Laboratory Analytical Results	3
4.0 SUMMARY AND RECOMMENDATIONS	4

ATTACHMENTS

ATTACHMENT A - Figures and Tables
ATTACHMENT B - Soil Boring Logs
ATTACHMENT C - Laboratory Analytical Report



1.0 INTRODUCTION

The objective of this Limited Subsurface Soil Investigation was to address environmental issues identified by Carlson Environmental, Inc. (CEI) in the Phase I Environmental Assessment site inspection, for the property located at 2424 Wisconsin Avenue, Downers Grove, Illinois (Figure One, Attachment A).

According to available information, staining was observed along the south wall of the loading dock area where the facility's air compressor discharge is located, and near two aboveground storage tanks (ASTs). The staining travels west to catch basins which are reportedly cleaned out on a regular basis. In addition, CEI observed staining outside the north wall of the site building along the north wall of the warehouse area. Finally, two gasoline pump islands were observed on the north side of Burnside Construction Company located adjacent to and east of the subject property. No underground storage tanks (USTs) were registered for this site (Figure One, Attachment A).

On December 3rd and 4th, 1996, CEI returned to the site to collect soil samples from under the loading dock's concrete floor surrounding the air-compressor discharge, outside the north wall of the site building in the vicinity of the drum storage area and along the eastern property boundary line closest to the two gasoline pump islands located at Burnside Construction Company. This is a report summarizing CEI's investigation and findings.

2.0 BACKGROUND

2.1 Site Description

The site covers approximately 4.0 acres and contains one building, asphalt-paved parking areas an undeveloped area and a gravel-covered area. The rectangular, one-story slab-on-grade structure has concrete construction. The site was constructed in approximately 1977. Prior to construction of the site building, the property was undeveloped. Currently, the site building is occupied by Bison Gear & Engineering Corporation which utilizes the facility to manufacture gear motors. Operations include stamping, painting, and assembly of cast steel and paper products for forming and shipping gear motors.

2.2 Purpose of Investigation

On December 3rd and 4th, 1996, CEI returned to the site to collect soil samples from beneath the concrete floor surrounding the air-compressor's discharge, outside on the north side of the building where staining was observed and along the eastern property



boundary line closest to the two gasoline pump islands identified at Burnside Construction Company. The purpose of this investigation was to determine if the subsurface soils had been impacted by volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PNAs) or benzene, toluene, ethyl benzene and xylene (BTEX) compounds.

3.0 SOIL INVESTIGATION

3.1 Sampling Methodology

On December 3rd and 4th, 1995, Melanie Luna, and Phil Hoeksema of CEI conducted the sampling activities at the subject site. During the investigation, CEI drilled through the concrete floor at four (4) locations and through a gravel covered area in the parking lot. The exact sampling locations were determined based on field observations and are depicted on Figure Two in Attachment A.

Boreholes LD-1 and LD-2 were emplaced around the air compressor's discharge located in the loading dock area. Boreholes LD-4 and LD-5 were emplaced outside the north wall of the site building in the vicinity of the drum storage area. Borehole LD-3 was emplaced at the eastern property line closest to the two gasoline pump islands located at Burnside Construction Company (Figure Two, Attachment A). Boreholes LD-1, LD-2, LD-4 and LD-5 were advanced to a depth of 5 feet below the ground surface (bgs). Borehole LD-3 was advanced to a depth of fifteen feet bgs.

At each of the four covered area, approximately 6-inches of concrete was encountered. Beneath the concrete were sandy and silty clays. Soil boring logs detailing the materials encountered at each borehole are included in Attachment B. After drilling through the concrete floor and gravel-covered area with a 6-inch diameter diamond tipped core-barrel, a geoprobe was used to continuously sample the soils. All soil samples were examined for visual evidence of contamination and screened with a photoionization detector (PID). The PID is an effective device for identifying areas where VOCs (e.g., oils, solvents, gasoline constituents, etc.) may exist. However, the PID does not identify specific compounds or their concentrations.

All down-hole drilling equipment was cleaned prior to use and between each borehole, and the spoon samplers was cleaned with an Alconox® soap solution between each sample.



CARLSON ENVIRONMENTAL, Inc.

Limited Subsurface Soil Investigation - PN 9442B
2424 Wisconsin Avenue - Downers Grove, Illinois

Page 3

Based on the results of field screening (PID measurements, odors and visual observations, etc), 5 soil samples were submitted for laboratory analyses. The samples selected depicted the greatest potential for contamination. Samples: LD-1E (5') and LD-2A (1') were submitted for PNA analysis using EPA Method 8310 and BTEX analysis using EPA Method 8021. Sample: LD-3D (7-9') was submitted for BTEX analysis using EPA Method 8021. Samples: LD-4A (1') and LD-5B (3') were submitted for PNA analysis using EPA Method 8310 and VOC analysis using EPA Method 8260.

Soil samples collected for chemical analyses were placed in laboratory supplied glass jars equipped with teflon-lined lids. The soil samples were immediately labeled and placed into an iced insulated cooler upon collection. Upon completion of the site activities, selected soil samples were shipped to Great Lakes Analytical for chemical analyses based on PID measurements. At all times, the samples were maintained under standard chain-of-custody procedures.

After the soil samples were collected, the concrete cores were placed back into the holes and approximately 1 to 2 inches of "quick drying cement" was used to fill in the remaining void which was subsequently leveled to the surrounding surface.

Field activities were performed following CEI's corporate Health and Safety procedures and guidelines, including the use of proper personal protection equipment.

3.2 Laboratory Analytical Results

All samples were submitted to Great Lakes Analytical of Buffalo Grove, Illinois, for analysis. No PNAs were detected in samples LD-1E and LD-2A above laboratory detection limits. Low levels of PNAs were detected in samples LD-4A and LD-5B, however these concentrations are below the Illinois Environmental Protection Agency's (IEPAs) Tiered Approach to Corrective Action Objectives (TACAO) Tier 1 Industrial/Commercial Route Values for migration to Class I Ground Water or Industrial/Commercial Ingestion pathways (Table One, Attachment A).

No BTEX was detected in samples LD-3D above laboratory detection limits. Low levels of BTEX was detected in samples LD-1E and LD-2A, however these concentrations are below the IEPA's TACAO Tier 1 Industrial/Commercial Route Values for migration to Class I Ground Water pathway (Table Two, Attachment A).

Low levels of VOCs were detected in samples LD-4A and LD-5B, however these concentrations are below the IEPAs TACAO Tier 1 Industrial/Commercial Route Values for migration to Class I Ground Water or pathway (Table Three, Attachment A).



CARLSON ENVIRONMENTAL, Inc.

Limited Subsurface Soil Investigation - PN 9442B
2424 Wisconsin Avenue - Downers Grove, Illinois

Page 4

A copy of the complete laboratory report along with the chain of custody is included in Attachment C.

4.0 SUMMARY AND RECOMMENDATIONS

The following is a summary of the Limited Subsurface Soil Investigation conducted by CEI at the property located at 2424 Wisconsin Avenue, Downers Grove, Illinois for the staining issues and gasoline pump islands identified in the Phase I Environmental Assessment report dated November 6, 1996.

The purpose of this investigation was to confirm if the site soils have been impacted by a release of contaminants. A total of five soil borings were emplaced at the subject site. Two soil samples were collected from the loading dock area beneath the concrete floor surrounding the air-compressor's discharge and analyzed for PNAs and BTEX. Two soil samples were collected from outside the north wall of the building near the overhead door and analyzed for PNAs and VOCs. One soil boring was collected from the eastern property boundary line closest to the two gasoline pump islands identified at Burnside Construction Company and analyzed for BTEX.

The laboratory reports indicate that low levels of PNAs, BTEX and VOCs were detected in several samples analyzed. However, none of the concentrations exceeded the IEPAs TACAO cleanup objectives.

According to the samples collected and analyzed, there does not appear to be significant contamination in the areas sampled.



CARLSON ENVIRONMENTAL, Inc.

ATTACHMENT A

Figures and Tables

LEGEND

- EMPTY 55-GALLON DRUMS
- 55-GALLON DRUMS FILLED WITH SCRAP STEEL
- ▤ PALLETS
- PAD-MOUNTED TRANSFORMERS
- FUEL PUMPS
- INDICATES STAINED AREA

UNDEVELOPED LAND

APPROXIMATE SITE BOUNDARY



NORWOOD
MARKING SYS.
2538

MULTI-TENANT
2500

MULTI-TENANT
2460

BISON GEAR & ENGINEERING CORP.
2424

OVERHEAD DOOR
ASTB
LOADING DOCK

GRAVEL-COVERED AREA

BURNSIDE CONSTRUCTION
COMPANY
2400

MULTI-TENANT
2302-2318

WISCONSIN AVENUE

2525
FLEXIBLE STEEL & LACING CO.

2451
BISON
ELECTRICAL

2435
MACNEIL
AUTOMOTIVE

2425
SW ANDERSON
COMPANY

JANES AVENUE

2333
SUBURBAN MOVING
& STORAGE



CARLSON ENVIRONMENTAL, INC.
312 WEST RANDOLPH STREET
CHICAGO, ILLINOIS 60606
(312) 346-2140

FIGURE ONE SITE CONFIGURATION BISON GEAR & ENGINEERING CORP. Downers Grove, Illinois

Drawn By: MLL

Project No. 9442A

Scale: No Scale

Checked By:

Date: 11/07/96

Size A

LEGEND

- 55-GALLON DRUMS FILLED WITH SCRAP METAL
- ▤ PALLETS
- PAD-MOUNTED TRANSFORMERS
- ⬢ FUEL PUMPS
- LD-5B • APPROXIMATE SAMPLING LOCATIONS
(3')

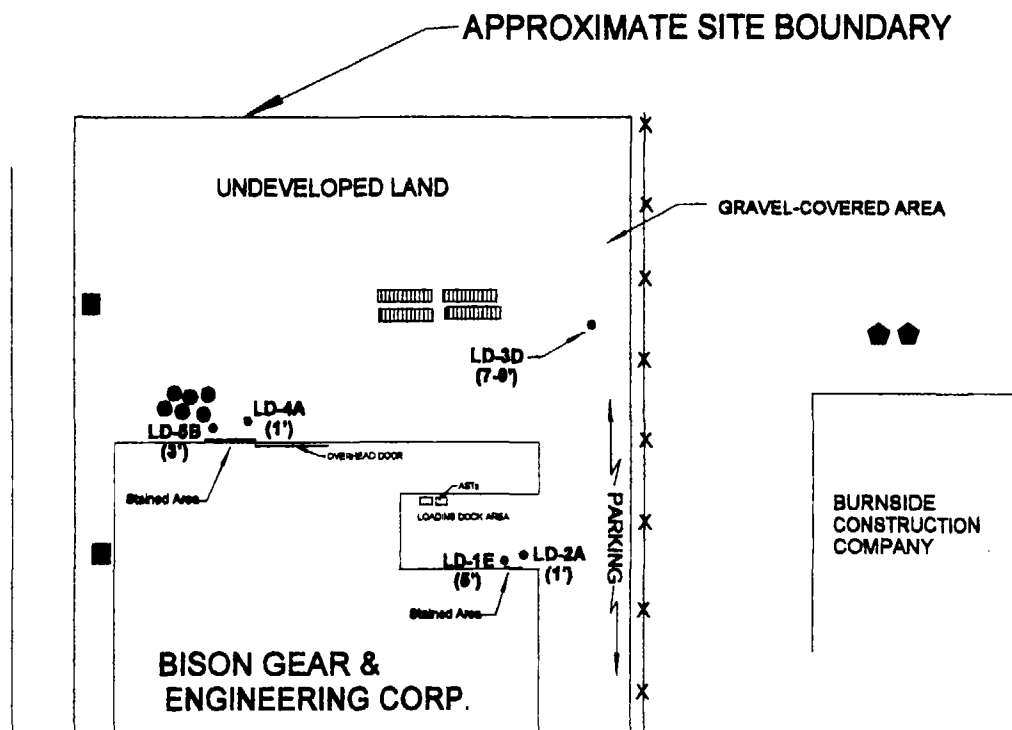


FIGURE TWO
APPROXIMATE BOREHOLE LOCATIONS
BISON GEAR & ENGINEERING CORP.
 Downers Grove, Illinois



CARLSON ENVIRONMENTAL, INC.
 312 WEST RANDOLPH STREET
 CHICAGO, ILLINOIS 60606
 (312) 346-2140

Drawn By: MLL

Project No. 9442B

Scale: No Scale

Checked By:

Date: 12/04/96

Size A

TABLE ONE:
Soil Sample Analytical Results
PNA (EPA Method 8310 - mg/kg)
2424 Wisconsin Avenue
December 4, 1996

Compound	Tier I Soil Remediation Objectives for Industrial/Commercial Properties *	Sample ID / Depth			
		LD-1E	LD-2A	LD-4A	LD-5B
Benz(a)anthracene	2	ND	ND	0.20	ND
Benzo(a)pyrene	8	ND	ND	1.6	ND
Benzo(b)fluoranthene	5	ND	ND	0.071	0.014
Benzo(g,h,i)perylene	NE	ND	ND	0.052	ND
Benzo(k)fluoranthene	49	ND	ND	0.60	ND
Chrysene	160	ND	ND	0.39	ND
Dibenzo(a,h)anthracene	0.8	ND	ND	0.020	ND

Notes:

* = IEPA Soil Cleanup Objectives established for the protection of Class I ground water or Industrial/Commercial Ingestion pathways
mg/kg = Milligrams per kilogram (parts per million)

ND = not detected
NE = not established

TABLE TWO:
Soil Sample Analytical Results
BTEX (EPA Method 8021 - mg/kg)
2424 Wisconsin Avenue
December 4, 1996

Compound	Tier I Soil Remediation Objectives for Industrial/Commercial Properties *	Sample ID / Depth		
		LD-1E	LD-2A	LD-3D
Benzene	0.30	0.0037	0.002	ND
Toluene	12	0.0081	ND	ND
Ethyl benzene	13	0.010	ND	ND
Xylenes	190	0.034	0.018	ND

Notes:

* = IEPA Soil Cleanup Objectives established for the protection of Class I ground water.
mg/kg = Milligrams per kilogram (parts per million)

ND = not detected

TABLE THREE:
Soil Sample Analytical Results
VOC (EPA Method 8310 - mg/kg)
2424 Wisconsin Avenue
December 4, 1996

Compound	Tier I Soil Remediation Objectives for Industrial/Commercial Properties *	Sample ID / Depth	
		LD-4A	LD-5B
Chloroethane	NE	ND	0.25
cis 1,2-Dichloroethene	0.4	ND	0.0084
Ethyl benzene	13	ND	0.010
Toluene	12	0.038	0.32
Trichloroethylene	0.06	0.007	0.011
Total Xylenes	190	0.019	0.051

Notes:

• = IEPA Soil Cleanup Objectives established for the protection of Class I ground water.
mg/kg = Milligrams per kilogram (parts per million)

ND = not detected

NE = not established



CARLSON ENVIRONMENTAL, Inc.

ATTACHMENT B

Soil Boring Logs

MAJOR DIVISIONS				TYPICAL NAMES	
COARSE-GRAINED SOILS More than 50% larger than No. 200 sieve size	GRAVEL AND GRAVELLY SOILS More than 50% of coarse fraction is larger than No. 4 sieve size	CLEAN GRAVELS Little or no fines		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES With over 12% fines		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
				GM	Silty gravels, gravel-sand-silt mixtures
		SAND AND SANDY SOILS More than 50% of coarse fraction is smaller than No. 4 sieve size	CLEAN SAND Little or no fines		GC
	SANDS WITH FINES With over 12% fines			SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
			FINE-GRAINED SOILS More than 50% smaller than No. 200 sieve size	SILTS AND CLAYS Liquid limit less than 50%	
		SC			Clayey sands, sand-clay mixtures
	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts, with slight plasticity			
SILTS AND CLAYS Liquid limit greater than 50%		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	
		OL		Organic silts and organic silty clays of low plasticity	
		MH		Inorganic silts, micaceous or diatomaceous fine sand or silty soils	
		CH		Inorganic clays of high plasticity, fat clays	
		OH		Organic clays of medium to high plasticity, organic silts	
	HIGHLY ORGANIC SOILS			PT	Peat, humus, swamp soils with high organic content

UNIFIED SOIL CLASSIFICATION SYSTEM

- Bulk or classification sample
- Sample preserved for possible analysis
- First-encountered ground water level (saturation)
- Static ground water level
- SPT - Standard Penetration Test
- P - Push sample (thin walled sampler "Shelby Tube")

- OVA - Organic Vapor Analyzer, including both the PID and FID
- PID - Photoionization Detector, (Microcap H-200) calibrated to 100 ppm isobutylene standard with a 10.2 eV lamp
- FID - Flameionization Detector (Century 128) calibrated with 95 ppm methane
- Blow Counts - Blows required to drive a standard split-spoon sampler 6 inches with a 140 pound hammer free falling 30 inches. Blow counts for S & H samplers are converted to approximate "equivalent" SPT N values ($n = 0.5 \times S + H$ blows per foot)
- "n" value - Number of blows required to advance the split-spoon sampler in two 6 inch increments falling 6 inches of setting

KEY TO BORING LOG



CARLSON ENVIRONMENTAL, INC.







312 West Randolph Street
Chicago, Illinois 80806
(312) 346-2140

Soil Classification Chart & Key To Test Data

Date 9-8-95	Drawn By P. Barys	Revised Date	Sheet of
----------------	----------------------	--------------	----------

Carlson Environmental, Inc. 312 West Randolph Street Suite 300 Chicago, IL 60606 Phone (312) 346-2140 Fax (312) 346-6956				Log of Boring LD-1 Bison Gear & Engineering Corp. 2424 Wisconsin Avenue Downers Grove, Illinois				Sheet 1 of 1 Job Number: 9442B Elevation:	
Driller: Carlson Environmental, Inc.					Date/Time Started: 12/03/96 0905				
Drill Method: Geoprobe					Date/Time Completed: 12/03/96 1017				
Sample Method: 1 1/4-Inch Diameter Plastic Sleeve					Depth to Water: ft. BGS			Depth to Rock: ft. BGS	
Borehole Diameter: 1 3/4 in.			Total Depth: 5 ft. BGS		Logged By: MLL			Checked By: PAH	
Sample No. (time)	Sample Interval (feet)	PID (units) Recovery (in)	Blow Counts	Depth (feet)	Graphic Log	Materials Description	Remarks		
LD-1A (0908)	1	1.5	NA	1 2 3 4 5		CONCRETE	oxidation observed		
LD-1B (0918)	2	1.2	NA			Light brown SANDY CLAY (CL-SC), soft to medium stiff, moist			
LD-1C (0925)	3	0.0	NA			Color changed to brown with fine gravel			
LD-1D (0937)	4	0.0	NA			Brown, gravelly SILTY CLAY (CL), medium stiff, moist			
LD-1E (1019)	5	121.0	NA			Brown CLAYEY SAND, fine grained sand seam			
						Brown, gravelly SILTY CLAY (CL), medium stiff, moist	oxidation observed		
						stiff	oxidation observed		
						Boring terminated at 5 feet bgs.	oxidation observed		

Carlson Environmental, Inc. 312 West Randolph Street Suite 300 Chicago, IL 60606 Phone (312) 346-2140 Fax (312) 346-6958				Log of Boring LD-2 Bison Gear & Engineering Corp. 2424 Wisconsin Avenue Downers Grove, Illinois				Sheet 1 of 1 <hr/> Job Number: 9442B <hr/> Elevation:	
Driller: Carlson Environmental, Inc.						Date/Time Started: 12/03/98 0940			
Drill Method: Geoprobe						Date/Time Completed: 12/03/98 1144			
Sample Method: 1 1/4-Inch Diameter Plastic Sleeve						Depth to Water: ft. BGS	Depth to Rock: ft. BGS		
Borehole Diameter: 1 3/4 in.			Total Depth: 5 ft. BGS			Logged By: MLL	Checked By: PAH		

Sample No. (time)	Sample Interval (feet)	PTD (units) Recovery (in)	Blow Counts	Depth (feet)	Graphic Log	Materials Description	Remarks
LD-2A (0945)	1	5.7	NA			CONCRETE	
				1		Light brown SANDY CLAY (CL-SC) , soft to medium stiff, moist	oxidation observed
LD-2B (1100)	2	4.7	NA	2		Brown SILTY CLAY (CL) , hard, moist to dry, trace coarse sand	oxidation observed
LD-2C (1125)	3	8.1	NA	3			oxidation observed
LD-2D (1127)	4	18.7	NA	4			oxidation observed
LD-2E (1148)	5	7.0	NA	5		color changed to dark brown, dry, fine coarse sand	
				6			
				7			
				8			
				9			
						Boring terminated at 5 feet bgs.	

Carlson Environmental, Inc.
312 West Randolph Street
Suite 300
Chicago, IL 60606
Phone (312) 346-2140 Fax (312) 346-6956

Log of Boring LD-3
Bison Gear & Engineering Corp.
2424 Wisconsin Avenue
Downers Grove, Illinois

Sheet 1 of 1

Job Number: 9442B

Elevation:

Driller: Rock & Soil Drilling Corp.

Date/Time Started: 12/03/96 1355

Drill Method: Geoprobe

Date/Time Completed: 12/03/96 1555

Sample Method: 1 1/4-Inch Diameter Plastic Sleeve

Depth to Water: ft. BGS

Depth to Rock: ft. BGS

Borehole Diameter: 1 3/4 In.

Total Depth: 15 ft. BGS

Logged By: MLL

Checked By: PAH

Sample No. (time)	Sample Interval (feet)	PID (units) Recovery (in)	Blow Counts	Depth (feet)	Graphic Log	Materials Description	Remarks
						CONCRETE	
LD-3A (1414)	1-3	151.0	NA	1		Brown SILTY CLAY (CL), soft to medium stiff with coarse sand	
LD-3B (1428)	3-5	204.0	NA	2			
LD-3C (1440)	5-7	31.8	NA	3			
LD-3D (1455)	7-9	187.0	NA	4		Brown SILTY CLAY (CL), medium stiff to stiff, medium coarse sand with fine gravel	
LD-3E (1530)	9-11	21.8	NA	5			
LD-3F (1555)	11-13	38.8	NA	6		saturated with coarse gravel	
LD-3G (1805)	13-15	31.8	NA	7			
				8		color changed to gray/brown	
				9			
				10			
				11			
				12			
				13			
				14			
				15		Boring terminated at: 15 feet bgs.	
				16			
				17			
				18			
				19			
				20			

Carlson Environmental, Inc.

312 West Randolph Street

Suite 300

Chicago, IL 60606

Phone (312) 348-2140 Fax (312) 348-8958

Log of Boring LD-4
Bison Gear & Engineering Corp.
2424 Wisconsin Avenue
Downers Grove, Illinois

Sheet 1 of 1

Job Number: 9442B

Elevation:

Driller: Carlson Environmental, Inc.

Date/Time Started: 12/04/98 0820

Drill Method: Geoprobe

Date/Time Completed: 12/04/98 0839

Sample Method: 1 1/4-Inch Diameter Plastic Sleeve

Depth to Water: ft. BGS

Depth to Rock: ft. BGS

Borehole Diameter: 1 3/4 in.

Total Depth: 5 ft. BGS

Logged By: MLL

Checked By: PAH

Sample No. (time)	Sample Interval (feet)	PID (units) Recovery (in)	Blow Counts	Depth (feet)	Graphic Log	Materials Description	Remarks
LD-4A (0825)	0-1	480.0	NA			CONCRETE	
				1		Brown/gray SILTY CLAY (CL), stiff with trace fine sand and gravel	Solvent odor detected
LD-4B (0833)	1-3	84.8	NA	2		color changed to green/gray with trace gravel	
				3			Solvent odor detected
LD-4C (0841)	3-5	113.0	NA	4		color changed to gray, moist	
				5		Boring terminated at 5 feet bgs.	Solvent odor detected
				6			
				7			
				8			
				9			

Carlson Environmental, Inc. 312 West Randolph Street Suite 300 Chicago, IL 60608 Phone (312) 348-2140 Fax (312) 348-8958				Log of Boring LD-5 Bison Gear & Engineering Corp. 2424 Wisconsin Avenue Downers Grove, Illinois				Sheet 1 of 1 <hr/> Job Number: 9442B <hr/> Elevation:	
Driller: Carlson Environmental, Inc.						Date/Time Started: 12/04/98 0850			
Drill Method: Geoprobe						Date/Time Completed: 12/04/98 0910			
Sample Method: 1 1/4-Inch Diameter Plastic Sleeve						Depth to Water: ft. BGS	Depth to Rock: ft. BGS		
Borehole Diameter: 1 3/4 in.			Total Depth: 5 ft. BGS			Logged By: MLL	Checked By: PAH		

Sample No. (time)	Sample Interval (feet)	PID (units) Recovery (in)	Blow Counts	Depth (feet)	Graphic Log	Materials Description	Remarks
LD-5A (0855)	0-1	582.0	NA			CONCRETE	
				1		Brown/gray SILTY CLAY (CL) , stiff with trace fine sand and gravel	Solvent odor detected
LD-5B (0904)	1-3	888.0	NA	2		color changed to brown, soft, moist	
				3		color changed to brown/gray, medium stiff with trace coarse sand	Solvent odor detected
LD-5C (0912)	3-5	351.0	NA	4			
				5			Solvent odor detected
				6		Boring terminated at 5 feet bgs.	
				7			
				8			
				9			



CARLSON ENVIRONMENTAL, Inc.

ATTACHMENT C

Laboratory Analytical Reports

**GREAT
LAKES
ANALYTICAL**

1380 Busch Parkway • Buffalo Grove, Illinois 60089

(847) 808-7766 FAX (847) 808-7772

Carlson Environmental, Inc.
312 W. Randolph Street
Chicago, IL 60606
Attention: Melanie Luna

Client Project ID: 9442B, Bison Gear & Eng. Corp.
Matrix Descript: Soil
Analysis Method: EPA 5030/8021
First Sample #: 612-0589

Sampled: Dec 3, 1996
Received: Dec 4, 1996
Analyzed: Dec 6, 1996
Reported: Dec 10, 1996

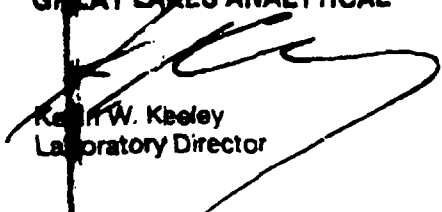
BTEX ANALYSIS (EPA 8021)

Sample Number	Sample Description	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
612-0589	LD-1E	0.0037	0.0081	0.010	0.034
612-0590	LD-2A	0.0020	N.D.	N.D.	0.018
612-0591	LD-3D	N.D.	N.D.	N.D.	N.D.

Detection Limits:	0.0020	0.0050	0.0050	0.0150
--------------------------	---------------	---------------	---------------	---------------

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL


Kevin W. Keeley
Laboratory Director

6120589.CAR <1>



1380 Busch Parkway • Buffalo Grove, Illinois 60089

(847) 808-7768 FAX (847) 808-7772

Carlson Environmental, Inc.
312 W. Randolph Street
Chicago, IL 60606
Attention: Melanie Luna

Client Project ID: 84428, Bison Gear & Eng. Corp.
Sample Descript: Soil: LD-1E
Analysis Method: EPA 8310
Lab Number: 612-0589

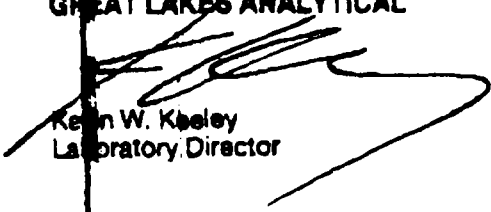
Sampled: Dec 3, 1996
Received: Dec 4, 1996
Extracted: Dec 5, 1996
Analyzed: Dec 5, 1996
Reported: Dec 10, 1996

POLYNUCLEAR AROMATIC HYDROCARBONS (EPA 8310)

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Acenaphthene.....	1.2	N.D.
Acenaphthylene.....	0.66	N.D.
Anthracene.....	0.66	N.D.
Benzo (a) anthracene.....	0.0087	N.D.
Benzo (a) pyrene.....	0.015	N.D.
Benzo (b) fluoranthene.....	0.011	N.D.
Benzo (ghi) perylene.....	0.051	N.D.
Benzo (k) fluoranthene.....	0.011	N.D.
Chrysene.....	0.10	N.D.
Dibenzo (a,h) anthracene.....	0.020	N.D.
Fluoranthene.....	0.66	N.D.
Fluorene.....	0.14	N.D.
Indeno (1,2,3-cd) pyrene.....	0.029	N.D.
Naphthalene.....	0.66	N.D.
Phenanthrene.....	0.66	N.D.
Pyrene.....	0.18	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL


Kevin W. Kneley
Laboratory Director

6120589.CAR <4>



1380 Busch Parkway • Buffalo Grove, Illinois 60089

(847) 808-7766 FAX (847) 808-7772

Clison Environmental, Inc.
312 W. Randolph Street
Chicago, IL 60606
Attention: Melanie Luna

Client Project ID: 94428, Bison Gear & Eng. Corp.
Sample Descript: Soil: LD-2A
Analysis Method: EPA 8310
Lab Number: 812-0590

Sampled: Dec 3, 1996
Received: Dec 4, 1996
Extracted: Dec 5, 1996
Analyzed: Dec 5, 1996
Reported: Dec 10, 1996

POLYNUCLEAR AROMATIC HYDROCARBONS (EPA 8310)

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Acenaphthene.....	1.2	N.D.
Acenaphthylene.....	0.66	N.D.
Anthracene.....	0.66	N.D.
Benzo (a) anthracene.....	0.0087	N.D.
Benzo (a) pyrene.....	0.015	N.D.
Benzo (b) fluoranthene.....	0.011	N.D.
Benzo (ghi) perylene.....	0.051	N.D.
Benzo (k) fluoranthene.....	0.011	N.D.
Chrysene.....	0.10	N.D.
Dibenzo (a,h) anthracene.....	0.020	N.D.
Fluoranthene.....	0.66	N.D.
Fluorene.....	0.14	N.D.
Indeno (1,2,3-cd) pyrene.....	0.029	N.D.
Naphthalene.....	0.66	N.D.
Phenanthrene.....	0.66	N.D.
Pyrene.....	0.18	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL


Kevin W. Kneley
Laboratory Director

8120589.CAR <5>



1380 Busch Parkway • Buffalo Grove, Illinois 60089

(847) 808-7766 FAX (847) 808-7772

Carlson Environmental, Inc.	Client Project ID: 9442B, Bison Gear & Eng. Corp.	Sampled: Dec 3, 1996
310 W. Randolph Street	Sample Descript: Soil: LD-4A	Received: Dec 4, 1996
Chicago, IL 60606	Analysis Method: EPA 8310	Extracted: Dec 5, 1996
Attention: Melanie Luna	Lab Number: 612-0592	Analyzed: Dec 5, 1996
		Reported: Dec 10, 1996

POLYNUCLEAR AROMATIC HYDROCARBONS (EPA 8310)

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Acenaphthene.....	1.2	N.D.
Acenaphthylene.....	0.66	N.D.
Acenaphrene.....	0.66	N.D.
<div style="background-color: black; height: 100px; width: 100%;"></div>		
Fluoranthene.....	0.66	N.D.
Fluorene.....	0.14	N.D.
Indeno (1,2,3-cd) pyrene.....	0.029	N.D.
Naphthalene.....	0.66	N.D.
Phenanthrene.....	0.66	N.D.
Pyrene.....	0.18	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL

 A handwritten signature in black ink, appearing to read 'Kevin W. Keeley'.

Kevin W. Keeley
Laboratory Director

6120589.CAR <8>



GREAT LAKES ANALYTICAL

1380 Busch Parkway • Buffalo Grove, Illinois 60089

(847) 808-7766 FAX (847) 808-7772

Calden Environmental, Inc.
312 W. Randolph Street
Chicago, IL 60606
Attention: Melanie Luna

Client Project ID: 9442B, Bison Gear & Eng. Corp.
Sample Descript: Soil: LD-5B
Analysis Method: EPA 8310
Lab Number: 612-0593

Sampled: Dec 3, 1996
Received: Dec 4, 1996
Extracted: Dec 5, 1996
Analyzed: Dec 5, 1996
Reported: Dec 10, 1996

POLYNUCLEAR AROMATIC HYDROCARBONS (EPA 8310)

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Acenaphthene.....	1.2	N.D.
Acenaphthylene.....	0.66	N.D.
Anthracene.....	0.66	N.D.
Benzo (a) anthracene.....	0.0067	N.D.
Benzo (a) pyrene.....	0.015	N.D.
Benzo (ghi) perylene.....	0.051	N.D.
Benzo (k) fluoranthene.....	0.011	N.D.
Chrysene.....	0.10	N.D.
Dibenzo (a,h) anthracene.....	0.020	N.D.
Fluoranthene.....	0.88	N.D.
Fluorene.....	0.14	N.D.
Indeno (1,2,3-cd) pyrene.....	0.029	N.D.
Naphthalene.....	0.66	N.D.
Phenanthrene.....	0.66	N.D.
Pyrene.....	0.18	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL


Kevin W. Kaeley
Laboratory Director

6120589.CAR <7>



1380 Busch Parkway • Buffalo Grove, Illinois 60089

(847) 808-7788 FAX (847) 808-7772

Carlson Environmental, Inc.
312 W. Randolph Street
Chicago, IL 60608
Attention: Melanie Luna

Client Project ID: 94428, Bison Gear & Eng. Corp.
Sample Descript: Soil: LD-4A
Analysis Method: EPA 8260
Lab Number: 812-0592

Sampled: Dec 3, 1996
Received: Dec 4, 1996
Analyzed: Dec 9, 1996
Reported: Dec 10, 1996

VOLATILE ORGANICS by GC/MS (EPA 8260)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acetone.....	25	N.D.
Benzene.....	5.0	N.D.
Bromodichloromethane.....	5.0	N.D.
Bromoform.....	5.0	N.D.
Bromomethane.....	5.0	N.D.
2-Butanone.....	10	N.D.
Carbon disulfide.....	5.0	N.D.
Carbon tetrachloride.....	5.0	N.D.
Chlorobenzene.....	5.0	N.D.
Chlorodibromomethane.....	5.0	N.D.
Chloroethane.....	5.0	N.D.
2-Chloroethyl vinyl ether.....	10	N.D.
Chloroform.....	5.0	N.D.
Chloromethane.....	5.0	N.D.
1,1-Dichloroethane.....	5.0	N.D.
1,2-Dichloroethane.....	5.0	N.D.
1,1-Dichloroethene.....	5.0	N.D.
cis-1,2-Dichloroethene.....	5.0	N.D.
trans-1,2-Dichloroethene.....	5.0	N.D.
1,3-Dichloropropane.....	5.0	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Ethylbenzene.....	5.0	N.D.
2-Hexanone.....	10	N.D.
Methylene chloride.....	5.0	N.D.
4-Methyl-2-pentanone.....	10	N.D.
Styrene.....	5.0	N.D.
1,1,2,2-Tetrachloroethane.....	5.0	N.D.
Tetrachloroethene.....	5.0	N.D.
1,1,1-Trichloroethane.....	5.0	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.
Trichlorofluoromethane.....	5.0	N.D.
Vinyl acetate.....	10	N.D.
Vinyl chloride.....	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL

Kathy W. Keeley
Laboratory Director

6120589 CAR <2>



1380 Busch Parkway • Buffalo Grove, Illinois 60089

(847) 808-7766 FAX (847) 808-7772

Cannon Environmental, Inc.
318 W. Randolph Street
Chicago, IL 60606
Attention: Melanie Luna

Client Project ID: 9442B, Bison Gear & Eng. Corp.
Sample Descript: Soil: LD-5B
Analysis Method: EPA 8260
Lab Number: 812-0593

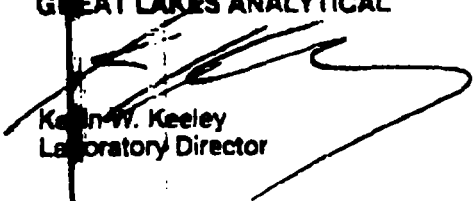
Sampled: Dec 3, 1996
Received: Dec 4, 1996
Analyzed: Dec 9, 1996
Reported: Dec 10, 1996

VOLATILE ORGANICS by GC/MS (EPA 8260)

Analyte	Detection Limit µg/kg	Sample Results µg/kg
Acetone.....	25	N.D.
Benzene.....	5.0	N.D.
Bromodichloromethane.....	5.0	N.D.
Bromoform.....	5.0	N.D.
Bromomethane.....	5.0	N.D.
2-Butanone.....	10	N.D.
Carbon disulfide.....	5.0	N.D.
Carbon tetrachloride.....	5.0	N.D.
Chlorobenzene.....	5.0	N.D.
Chlorodibromomethane.....	5.0	N.D.
2-Chloroethyl vinyl ether.....	10	N.D.
Chloroform.....	5.0	N.D.
Chloromethane.....	5.0	N.D.
1,1-Dichloroethane.....	5.0	N.D.
1,2-Dichloroethane.....	5.0	N.D.
1,1-Dichloroethene.....	5.0	N.D.
trans-1,2-Dichloroethene.....	5.0	N.D.
1,2-Dichloropropane.....	5.0	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
2-Hexanone.....	10	N.D.
Methylene chloride.....	5.0	N.D.
4-Methyl-2-pentanone.....	10	N.D.
Styrene.....	5.0	N.D.
1,1,2,2-Tetrachloroethane.....	5.0	N.D.
Tetrachloroethene.....	5.0	N.D.
1,1,1-Trichloroethane.....	5.0	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.
Trichlorofluoromethane.....	5.0	N.D.
Vinyl acetate.....	10	N.D.
Vinyl chloride.....	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

GREAT LAKES ANALYTICAL


Kevin W. Keeley
Laboratory Director

8120589 CAR <3>



~~NO. 7790~~

(312) 346-2140

ECJ NAME
BISON GEAR & ENGINEERING CORP

ERS. ^{11/20/80} *Melanie L. Luna* (MELANIE L. LUNA)

NUMBER
OF CONTAINERS

(INDICATE
SEPARATE
CONTAINERS)

SEPARATE
CONTAINERS)

BTX (8c21)
PNAS (8310)
VDCS (8266)

REMARKS

~~6120589~~

6120590

6120591

6120592

6120592

for [illegible]

K. Krell 12/4/96
1600

Received in Laboratory by
1964

REMARKS

PLEASE FAX RESULTS TO:
MELANIE LUNA @
(312) 346-6956

~~RE~~ * PLEASE FAX NLT 12/10/96 2:00pm

U.S. ENVIRONMENTAL
PROTECTION AGENCY

MAR 31 2004

OFFICE OF REGIONAL
COUNSEL